



DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.

2025

SERIES

A

CODE : YCT - 01

SUB : Preliminary Examination

Section-A : Engineering Aptitude : Q. No. 1 to 100

Section-B : General Knowledge : Q. No. 101 to 125

Section-C : General Hindi : Q. No. 126 to 150

Time : 2 Hours

Max. Marks : 300

Write your Roll Number

In numbers

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In the box

in words

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To mark Answer use Black Ball-point Pen only.

Candidate must read all the instructions before writing the answers.

You are to mark read all the instructions before writing the answers.

You are to mark your answer on Answer-Sheet only. After the examination is over, handover the original Answer-Sheet to the Invigilator.

## IMPORTANT INSTRUCTIONS

1. Answer all questions. All questions carry equal marks.
2. The Candidate should indicate the correct Roll Number, Subject, Paper Code and its Series on the Answer- Sheet, otherwise the Answer-Sheet will not be evaluated and the candidate will solely responsible for it.
3. **This Test Booklet contains 150 questions.** Each question has four (4) options which are given below the questions. Only one option is correct out of four. You are required to darken the circle corresponding to the alternative which you consider to be the correct or most appropriate answer in the Answer-Sheet by Black Ball-point Pen.
4. Do not write anything on the cover page of the Test Booklet except Roll Number. Use the space for rough work given in the last two pages of Test Booklet.
5. If you happen to find that the Booklet issued to you does not have all the pages properly printed or it has any other deficiency, then you need to approach the Invigilator to get another Booklet of same Series and Code.
6. In this question booklet questions are printed in English languages.
7. **Penalty for wrong answers :**  
**THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE ANSWER SHEET.**
  - (i) There are four alternatives for the answer to every question. For each questions for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.
  - (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.
  - (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

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## Section- A : Engineering Aptitude

1. Among the effects of design specifications on costs, which one of the following is the most significant that influences the producibility of end product?
  - (a) Standard size
  - (b) Large tolerance
  - (c) Breakeven point
  - (d) Cost estimate
2. For a vehicle travelling at 24 km/hr having a wheel radius of 0.305 m with overall gear ratio  $G = 19.915$ , and when torque transmitted is 203.6 N.m. the engine speed and power are, nearly
  - (a) 4155 rpm and 88.6 kW
  - (b) 4500 rpm and 88.6 kW
  - (c) 4155 rpm and 95.4 kW
  - (d) 4500 rpm and 95.4 kW
3. If the radius of a generating circle which is moving inside the directing circle is half of the radius of the directing circle, the curve generated by a point on the circumference of the generating circle is
  - (a) A circle
  - (b) An ellipse
  - (c) A straight line
  - (d) A spiral
4. If a square is perpendicular to H.P. and parallel to V.P. the its top view will be-
  - (a) A rectangle
  - (b) A square
  - (c) A line
  - (d) A point
5. A triangular prism, base 40 mm side and axis 50 mm long is resting on the of its bases on the H.P. with a vertical face perpendicular to the V.P. What is the front view of the prism?
  - (a) a triangle
  - (b) a rectangle
  - (c) combination of triangle and rectangle
  - (d) combination of triangle and circle
6. Consider the following statements regarding metallic bonding:
  1. The metallic sharing changes with time and the bonding electrons resonate between different atoms.
  2. The metallic state can be visualized as an array of positive ions, with a common pool of electrons to which all the metal atoms have contributed their outer electrons.
  3. These electrons have freedom to move anywhere within the crystal and act like an all-pervasive, mobile glue holding the ion cores together.

Which of the above statements are correct ?

  - (a) 1 and 2 only
  - (b) 1 and 3 only
  - (c) 2 and 3 only
  - (d) 1, 2 and 3
7. **Statement (I):** The tie line is constructed across the two-phase region at the temperature of the alloy.  
**Statement (II):** The overall alloy composition is located on the tie line.
  - (a) Both statement (I) and Statement (II) are individually true and statements (II) is the correct explanation of statements (I)
  - (b) Both Statement (I) and Statements (II) are individually true but statements (II) is not the correct explanation of statements (I)
  - (c) Statement (I) is true but statements (II) is false
  - (d) Statement (I) is false but statements (II) is true
8. Which of the following structures has the highest packing factor?
  - (a) Simple cubic
  - (b) Body centred cubic
  - (c) Face centred cubic
  - (d) Body centred tetragonal
9. Which property of an electrical conductor opposes the flow of current through it?
  - (a) Conductance
  - (b) Resistance
  - (c) Reluctance
  - (d) Permeance
10. Quartz and  $\text{BaTiO}_3$  exhibit which of the following properties?
  - (a) Magnetostriction
  - (b) Ferromagnetism
  - (c) Piezoelectricity
  - (d) Ferroelectricity
11. For the total energy of a system to remain constant, which one of the following conditions is to be fulfilled?
  - (a) The system should be an open system
  - (b) The system should be isolated
  - (c) The temperature variation must be steady
  - (d) The pressure variation must be steady
12. Thermoelectric thermometer works on the principle of
  - (a) Wheatstone bridge
  - (b) Entropy
  - (c) Seebeck effect
  - (d) Ohmmeter
13. For reversible adiabatic compression in a steady flow process, the work transfer per unit mass is
  - (a)  $\int p dv$
  - (b)  $\int v dp$
  - (c)  $\int T ds$
  - (d)  $\int s dT$
14. Which of the below mentioned cycle has same efficiency as that of a Carnot cycle?
  - (a) Dual cycle
  - (b) Diesel cycle
  - (c) Otto cycle
  - (d) Ericsson cycle
15. Change of entropy in a reversible process depends upon
  - (a) change of heat
  - (b) change of temperature
  - (c) change of specific heats
  - (d) change of pressure and temperature

16. **A geologic formation which stores water and is also capable of transmitting water through its pores at a large rate is called:**  
 (a) Aquifer (b) Aquiclude  
 (c) Aquifuge (d) Aquitard
17. **Which of the following processes is not a part of the hydrological cycle?**  
 (a) Transpiration  
 (b) Condensation  
 (c) Evaporation  
 (d) Combustion
18. **Which one of the following is not a major deterrent in water harvesting through water tanks ?**  
 (a) Deforestation mainly due to population pressure in the catchments of tank systems  
 (b) Siltation  
 (c) Lack of maintenance and repairs and breaches of tank embankments  
 (d) Shallow depth of water tanks
19. **A water body having high B.O.D. indicates that its water is :**  
 (a) Receiving minerals  
 (b) Being aerated  
 (c) Being contaminated by sewage  
 (d) Atrophic
20. **What is a drought?**  
 (a) A period of highly variable rainfall  
 (b) When rivers fall below particular levels  
 (c) A period of below average precipitation in a specific region.  
 (d) When there is no water human or animal use
21. **Which of the following is a measure of sustainable income level that can be secured without decreasing the stock of natural assets?**  
 (a) Natural Capital Stock  
 (b) Environmental Value  
 (c) Green Accounting  
 (d) Social Discount Rate
22. **The three phases involved in the management of large projects are**  
 (a) scheduling, designing, operating  
 (b) scheduling, operating, evaluating  
 (c) planning, scheduling, evaluating  
 (d) planning, scheduling, controlling
23. **Why Delphi method of demand forecasting appeals to many organizations?**  
 (a) The biases underlying are subjective and it seems to be more accurate and less expensive than the traditional face-to-face group meetings  
 (b) It is intelligible to users, it is a fancy name, and it seems to be more accurate and less expensive than be traditional face-to-face group meetings  
 (c) It has immense appeal, the biases underlying are subjective, and it seems to be more accurate and less expensive than the traditional face-to-face group meetings  
 (d) It is an expedition's method, it has immense appeal, and it seems to be more accurate and less expensive than the traditional face-to-face group meetings
24. **In network computation process, which one of the following is correct for forward pass?**  
 (a) It starts with the first project activity (ies) and traces each path (chain of sequential activities) through the network to the last project activity (ies)  
 (b) This is the longest path in the network, which will delay the project  
 (c) It starts with the last project activity(ies) on the network  
 (d) It starts with the last project activity (ies) and traces each path (chain of sequential activities) through the network to the first project activity(ies)
25. **Consider the following statements regarding safety during demolition of a multistory building:**  
 1. Demolition need not proceed multistory by storey  
 2. Floor openings, not used for material chutes, should be enclosed with adequate guard rails  
 3. Before demolition starts all lath and loose plaster shall be stripped off throughout the building  
 4. Adequate and well-stiffened lateral bracing shall be provided for walls
- Which of the above statements are correct?**  
 (a) 1, 2 and 3 only (b) 1 and 4 only  
 (c) 2, 3 and 4 only (d) 1, 2, 3 and 4
26. **Class D fire extinguishers are commonly found in a chemical laboratory. They are for fires that involve combustible metals, such as magnesium, titanium potassium and sodium. the geometric symbol for class D fire extinguishers is a/an**  
 (a) Yellow Star  
 (b) Red Square  
 (c) Green Triangle  
 (d) Blue Circle
27. **Consider the following statements:**  
 (i) The failure of many structures  
 (ii) Accidents on major highways  
 (iii) Discharge of effluents which pollute rivers  
 (iv) Dangerous gas emissions

These are attributable to:

1. Improper design
2. Not adhering to proper maintenance practices
3. Lack of proper inspection and quality control construction
4. Corruption amongst several concerned individuals
5. Lack of public concern

Select the most appropriate answer using the codes given below:

- (a) 1, 2 and 3 only
- (b) 1, 2 and 4 only
- (c) 3, 4 and 5 only
- (d) 1, 2, 3, 4, and 5

28. Identify the method of artificial respiration shown in the figure.



- (a) Labord method
- (b) Silvester's method
- (c) Schafer's method
- (d) Mouth to mouth method

29. Which one of the statements is NOT relevant to quantum computing?

- (a) Quantum computing is that much more powerful function may be computed using qubits and quantum gates.
- (b) Quantum operations are well adapted to describe discrete state changes, that is, transformations between an initial state and final state, without explicit reference to the passage of time.
- (c) Quantum computation does not support entanglement and measurement of quantum computer's registers can yield only a small, discrete set of values
- (d) Quantum computing is the used of quantum computing is the use of quantum phenomena such as superposition and entanglement to perform the computation.

30. Which one of the following standards is used in vehicular communication system?

- (a) IEEE 802.11a
- (b) IEEE 802.11p
- (c) IEEE 802.11g
- (d) IEEE 802.11h

31. In OSI network architecture, the routing is performed by

- (a) Network layer
- (b) Data link layer
- (c) Transport layer
- (d) Session layer

32. The main goal of G2B (Government to Business) is

1. To increase productivity by giving more access to information.
2. To lower the cost of doing business.
3. To create more transparency.

Select the correct answer using the codes given below:

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 3 only
- (d) 1, 2 and 3

33. Which one of the following learning web technology to conduct conventional classes with distant learners?

- (a) Learner-led e-learning
- (b) Instructor-led e-learning
- (c) Telementoring and e-learning
- (d) Facilitated e-learning

34. Who coined the term "artificial intelligence"?

- (a) Alan Turing
- (b) John McCarthy
- (c) Bill Gates
- (d) Tim Berners-Lee

35. For ES to be successful, \_\_\_\_\_ is encouraged

- (a) Rapid prototyping
- (b) Change at rapid prototyping phase
- (c) The expert complete involvement
- (d) All of these

36. The value of g in A\* algorithm indicates

- (a) Estimate of root node to current node distance
- (b) Estimate of root node to goal node distance
- (c) Estimate of current node to root node distance
- (d) Root node to current node distance

37. A complain motion control of robots can be understood by the problem of controlling of

- (a) Position and velocity of joints
- (b) Position and acceleration of the end-effector
- (c) Manipulator motion and its force interactions with the environment
- (d) Joint velocities of given end-effector velocity

38. Consider the following statements with reference to SCARA Robot:

1. It has four degrees of freedom
2. It has only one forward kinematic solution.
3. It has two inverse kinematic solutions.

Which of the above statements are correct?

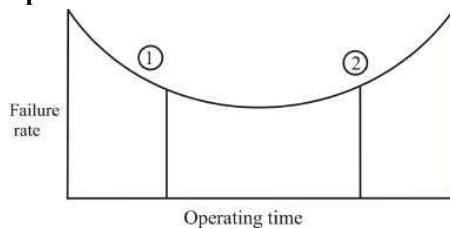
- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 and 2 only
- (d) 1, 2, and 3

39. What is the main purpose of 5'S concept?
- To reduce wastage
  - To save wastage and time
  - To save wastage and money
  - To reduce wastage and increases productivity
40. Preventive maintenance of machine involves:
- periodic inspection of machine and equipment
  - lubrication as per manufacturer instructions
  - servicing & overhauling of machines
  - all of the above
41. Which of the following is a disadvantage of corrective maintenance?
- It is typically cost effective compared to preventative maintenance.
  - Equipment downtime can be unpredictable and often longer
  - It leads to improved asset longevity
  - It eliminates the need for maintenance staff
42. If there is a repeated breakdown or tripping in the line due to a fault which inspection is necessary to explore the nature of the fault.
- special inspection
  - emergency inspection
  - routine inspection
  - all of the above
43. The maintenance activities such as regular inspections or machine servicing \_\_\_\_\_ maintenance is done on regular basis, whether that be daily, weekly, monthly or yearly.
- reactive maintenance
  - breakdown maintenance
  - predictive maintenance
  - routine maintenance
44. Energy services for sustainable development are directly linked to :
1. Poverty, 2. Lifestyle, 3. Women, 4. Deformation
- Select the correct answer using the codes given below :
- 1, 2 and 3 only
  - 1, 2 and 4 only
  - 2, 3 and 4 only
  - 1 and 3 only
45. What is a green data center?
- A data center created by environmentalists to keep record of green technology, clean production techniques
  - A repository for the storage, management and dissemination of mechanical, lighting, electrical and computer systems developed to optimize energy efficiency and environment impact
  - A data center for green building for optimizing of power consumption using energy efficient technology
  - A repository providing information about details of small scale industries adopting energy efficiency measures
46. Which one of the following sources of renewable energy has the greatest potential in India?
- Solar power
  - Biomass power
  - Small hydel power
  - Energy recovery by waste
47. For which one of the following Satara is famous?
- Thermal power project
  - Wind power project
  - Hydro-electric power project
  - Nuclear power plant
48. Which of the following could provide both power and fertilizer?
- Nuclear plant
  - Thermal plant
  - Biogas plant
  - Hydroelectric plant
49. Which one of the following instruments is commonly used to measure primary current of a transformer connected to mains?
- Electrostatic meter
  - Current transformer
  - Moving coil type meter
  - Moving iron meter
50. Which of the following are the characteristics of a thermocouple type of indicating instrument?
- Its accuracy is very high, as high as about 1 percent.
  - It has linear scale because a D'Arsonval movement is used for measuring the output.
  - It is an RF instrument and can be used for frequency up to about 50 MHz.
  - It cannot be damaged by overloads.
- 1 and 2
  - 2 and 3
  - 3 and 4
  - 1 and 3
51. Match List-I with List-II and select the correct answer:
- |    | List-I             |      | List-II   |
|----|--------------------|------|---|
| P. | Precision          | i.   | The smallest change in the input quantity which can be detected with its certainty.   |
| Q. | Accuracy           | ii.  | Closeness of the reading with its true value.   |
| R. | Resolution         | iii. | Measurement of the reproducibility of the measurement.                                |
| S. | Static Sensitivity | iv.  | Ratio of infinitesimal change sensitivity in output to infinitesimal change in input. |



**Correct Answer Codes:**

- (a) 1 and 2 only                      (b) 2 and 3 only  
(c) 1 and 3 only                      (d) All of the above
65. **What are the three stages in the development of professional identity?**  
(a) Possessing knowledge, professional services, self-defining or integrated professional  
(b) Independent operator, professional services, self-defining or integrated professional  
(c) Possessing knowledge, team-oriented idealist, self-defining or integrated professional  
(d) Independent operator, team-oriented idealist, self-defining or integrated professional
66. **Assertion (A) : The empathetic act establishes an intimate bridge of relationship between the sender and receiver for the proper perception of a communication in a right sense.**  
**Reason (R) : By means of sympathy, an individual develops a clear understanding to appreciate the intentions of others in their own views and moral angles.**  
**Codes:**  
(a) Both A and R are true and R is correct explanation of A  
(b) Both A and R are true but R is not a correct explanation of A  
(c) A is true but R is false  
(d) A is false but R is true
67. **Spirituality is promoted in the work-place by adhering to the following activities:**  
1. Verbally respect the individuals as humans and recognize their values in all decisions and actions.  
2. Support causes outside the business.  
3. Do unto others as you would have them do unto you.  
4. Realization of the self-potential through meditative acts.  
**Which of the above activities are correct?**  
(a) 2, 3 and 4 only                      (b) 1, 2, 3 and 4  
(c) 2 and 3 only                      (d) 1, 2 and 3 only
68. **From the bath tub curve, what does 1 and 2 implies for:**



- (a) Wearout phase and Running phase respectively  
(b) Running phase and wearout phase respectively

- (c) Decreasing of efficiency and increasing of efficiency  
(d) Rate of consumption of fuel

69. **The Kaizen improvement denotes**  
(a) Sequential improvement  
(b) Continuous improvement  
(c) Stepwise improvement  
(d) Constant improvement
70. **The quality characteristics and be categorized in which of the following groupings?**  
1. Sensory characteristics  
2. Structural characteristics  
3. Statistical characteristics  
4. Time oriented characteristics  
**Select the correct answer using the code given below:**  
(a) 1, 2, 3 and 4  
(b) 1 and 4 only  
(c) 2 and 3 only  
(d) 1, 2 and 4 only
71. **Relative Precision Index (R.P.I.) is defined as**  
(a) Tolerance  $\times$  Average Range  
(b) Tolerance/Average Range  
(c) Average Range/Tolerance  
(d)  $\sqrt{\frac{\text{Average Range}}{\text{Tolerance}}}$
72. **What is the time limit of Geographical Indication Tag?**  
(a) 60 years                      (b) 20 years  
(c) 30 years                      (d) 10 years
73. **The office of controller General of Patents, Designs and Trademarks (CGPDTM) falls under -**  
(a) Ministry of Cooperation  
(b) Ministry of Commerce and Industry  
(c) Ministry of Micro, Small and Medium Enterprises  
(d) Ministry of Parliamentary Affairs.
74. **The essential features of copyright are -**  
(A) Creation of statute  
(B) Multiple rights  
(C) The work must be original  
(D) Copyright exist in expression of idea not the idea itself  
**Choose the most appropriate answer from the options given below:**  
(a) (B), (C) and (D)  
(b) (A) and (B) only  
(c) (A), (B) and (C) only  
(d) (A), (B), (C) and (D)

75. Which of the following are the salient features of the Patent Act 1970?
1. It codifies inventions which are not patentable
  2. It provides for endorsement of patent with the words 'license of right'
  3. It provides for revocation of patents in public interest
  4. It has provision for validity period also for the patents.
- Select the correct answer using the codes given below:
- (a) 1, 2, 3 and 4
  - (b) 1, 2 and 4 only
  - (c) 1, 3 and 4 only
  - (d) 2 and 3 only
76. Which of the following is not IPR Law -
- (a) Patent Act, 1970
  - (b) Copyright Act, 1957
  - (c) Trade Marks Act, 1999
  - (d) Excise Act, 1958
77. The type of layout of water supply distribution system that has only one main from which sub-mains and laterals branch off, also most suitable for an irregularly grown city is
- (a) dead-end system
  - (b) grid iron system
  - (c) ring system
  - (d) radial system
78. Important steps of krebs cycle :
- A. Succinate
  - B. Malate
  - C.  $\alpha$ -Ketoglutarate
  - D. Citrate
  - E. Oxaloacetate
- Choose the correct answer from the options given below :
- (a) A  $\rightarrow$  E  $\rightarrow$  D  $\rightarrow$  B  $\rightarrow$  C
  - (b) D  $\rightarrow$  C  $\rightarrow$  A  $\rightarrow$  B  $\rightarrow$  E
  - (c) D  $\rightarrow$  B  $\rightarrow$  C  $\rightarrow$  E  $\rightarrow$  A
  - (d) A  $\rightarrow$  D  $\rightarrow$  B  $\rightarrow$  E  $\rightarrow$  C
79. Given below are two statements:
- Statement I: Anemia is the leading cause of maternal death in India.
- Statement II: Around 50% of females in India are anemic.
- In the light of the above statements choose the correct answer from the options given below:
- (a) Both statement I and statement II are true.
  - (b) Both statement I and statement II are false.
  - (c) Statement I is correct but statement II is false.
  - (d) Statement I is incorrect but statement II is true.
80. Definition of 'Health' as defined by WHO is:
- (a) Health is a state of complete physical, mental and social well being.
  - (b) Health is an absence of disease or infirmity
  - (c) Health is state of complete physical, mental and social well-being and not merely an absence of disease or infirmity
  - (d) Health is a state of complete physical and mental well being
81. What is the main purpose of product storage in warehouses?
- (a) To keep products in an aesthetically pleasing arrangement
  - (b) To provide a safe and organized environment for inventory until needed
  - (c) To reduce the cost of products
  - (d) To prevent products from being damaged
82. For handling liquid products stored in barrels, which equipment is most appropriate?
- (a) Drum trolleys or lifters
  - (b) Belt conveyors
  - (c) Cantilever racks
  - (d) Forklifts with standards forks
83. Which type of product is best handled by pallet trucks or jacks?
- (a) Bulk liquids stored in containers
  - (b) Palletized goods
  - (c) Long and irregularly shaped products
  - (d) Extremely heavy machinery
84. Which of the following is an example of a durable product?
- (a) Milk
  - (b) Laptop
  - (c) Newspaper
  - (d) Shampoo
85. The 'Minamata Tragedy' was caused by the eating of fish growing in to the Minamata Bay contaminated with
- (a) Peroxy alynitrate
  - (b) Methyl isocyanate
  - (c) Potassium cyanide
  - (d) Methylmercury
86. Consider the following statements with regard to atmosphere humidity.
1. Absolute humidity is the amount of water vapour per unit volume.
  2. Hygrometer is used to measure relative humidity.
  3. Dew point is the temperature at which the relative humidity is 75%
- Which is the above statements are correct?
- (a) 1 and 2 only
  - (b) 1 and 3 only
  - (c) 2 and 3 only
  - (d) 1, 2 and 3



87. Which one of the following regions is characterized by sensitive ecosystems, enhanced occurrences of extreme weather events and natural catastrophes ?  
 (a) Mountain region  
 (b) Evergreen forest region  
 (c) Tropical region  
 (d) Tundra region
88. Which one of the following is an interactive and evolutionary process for achieving sustainable development?  
 (a) Flood control management (FCM)  
 (b) Solid waste management (SWM)  
 (c) Integrated coastal zone management (ICZM)  
 (d) Natural ecosystem zone (NEZ)
89. Steel balls are manufactured by:  
 (a) casting (b) machining  
 (c) sintering (d) cold heading
90. In a blanking operation, the clearance is provided  
 (a) 50% on punch and 50% on die  
 (b) only on die  
 (c) only on punch  
 (d) clearance not needed
91. What is CRISPR-Cas9 primarily used for in genomics?  
 (a) Sequencing genomes  
 (b) Gene editing  
 (c) Gene expression profiling  
 (d) Identifying genetic variants
92. In Bt. Cotton, which is a transgenic crop, Bt stands for:  
 (a) Biotechnology Product  
 (b) Name of Bacterium  
 (c) Basic Transgenic  
 (d) Insecticidal Protein
93. How does AI assist in the early detection of cancer?  
 (a) By performing genetic testing  
 (b) By analyzing medical histories  
 (c) By analyzing radiological images with deep learning  
 (d) By increasing the number of screenings
94. Which of the following is the most significant development in AI in 2024?  
 (a) Quantum Computing Integration  
 (b) GPT-4 becoming publicly available  
 (c) Autonomous AI decision-making in healthcare  
 (d) AI - powered brain computer interfaces
95. What of the following is a key advantage of electric vertical take off and landing (EVTOL) aircraft ?  
 (a) High fuel consumption  
 (b) Short take off and landing distance  
 (c) High environmental impact  
 (d) Limited passenger capacity
96. Which technology is considered the backbone of 5G networks to achieve high-speed communication?  
 (a) Fiber Optic Communication  
 (b) Satellite Communication  
 (c) Cloud Communication  
 (d) Blockchain Technology
97. Match List-I with List-II and choose the correct answer using the code given below
- | List-I |            | List-II |                 |
|--------|------------|---------|-----------------|
| A.     | Vitamin-C  | 1.      | Night blindness |
| B.     | Folic Acid | 2.      | Beri-Beri       |
| C.     | Vitamin-A  | 3.      | Anemia          |
| D.     | Vitamin-B1 | 4.      | Scurvy          |
- Code :
- |     |   |   |   |   |
|-----|---|---|---|---|
|     | A | B | C | D |
| (a) | 1 | 2 | 4 | 3 |
| (b) | 4 | 3 | 1 | 2 |
| (c) | 4 | 3 | 2 | 1 |
| (d) | 2 | 3 | 1 | 4 |
98. In a normal ECG waveform, which wave has the maximum amplitude?  
 (a) P- wave (b) R- wave  
 (c) Q- wave (d) T- wave
99. F-16 fighter planes are manufactured by :  
 (a) Bell Aircraft Corporation  
 (b) Boeing Aircraft Company  
 (c) Dassault Aviation  
 (d) Lockheed Martin Aeronautics Company
100. Which one of the following is not the best approach for the prevention of product liability?  
 (a) Analysis and design  
 (b) Quality control  
 (c) Comprehensive testing  
 (d) Cost

## Section-B : General Knowledge

101. The iron-ore reserves of India are associated with which of the following rock systems?  
 (a) Dharwar  
 (b) Cuddappah  
 (c) Vindhyan  
 (d) Gondwana
102. The black cotton soil of India has been formed due to the weathering of  
 (a) Brown forest soil  
 (b) Fissure volcanic rock  
 (c) Granite and schist  
 (d) Shale and limestone

103. Match List I with List II and select correct answer by using codes given below :

List-I (Pasture/ Hill station)	List-II (Location/State)
A. Banni grassland	1. Uttarakhand
B. Bughal grassland	2. Jammu and Kashmir
C. Khajjiar	3. Gujarat
D. Pahalgam	4. Himachal Pradesh

Codes :

	A	B	C	D		A	B	C	D
(a)	1	3	2	4	(b)	3	1	4	2
(c)	3	1	2	4	(d)	4	2	1	3

104. Match List-I with List-II and select the correct answer from the codes given below:

List-I (Place)	List-II (Confluence of the rivers)
(a) Dev Prayag -	1. Bhagirathi and Alakananda
(b) Rudra Prayag-	2. Alakananda and Mandakini (Kali Ganga)
(c) Karna Prayag-	3. Alakananda and Pindar
(d) Nand Prayag-	4. Alakananda and Mandakini

Code :

	A	B	C	D		A	B	C	D
(a)	1	3	2	4	(b)	2	4	3	1
(c)	3	2	4	1	(d)	1	2	3	4

105. Match List-I with List-II and select the correct answer using the codes given below the lists.

List-I (State of India)	List-II (Highest Peak)
(a) Tamil Nadu	1. Dhupgarh Peak
(b) Rajasthan	2. Saramati Peak
(c) Nagaland	3. Gurushikhar Peak
(d) Madhya Pradesh	4. Dodda Betta Peak

Codes:

	A	B	C	D
(a)	3	2	1	4
(b)	1	4	3	2
(c)	4	2	3	1
(d)	4	3	2	1

106. Which Article of the Constitution of India empowers the President to issue ordinance?

(a) Article 74	(b) Article 78
(c) Article 123	(d) Article 124(2)

107. In a Parliamentary system of the Government

- (a) Judiciary controls Executive
- (b) Executive controls Judiciary
- (c) Executive controls Legislature
- (d) Legislature controls Executive

108. Which of the following Fundamental Rights have been not provided to foreigners?

- (a) Equality before law
- (b) Freedom of expression
- (c) Protection of life and personal liberty
- (d) Right against Exploitation

109. Match list-I with list-II and select the correct answer using the codes given below the list:

List - I (Constitutional Provision)	List - II (Source)
(A) Article 40	1. Organization of village Panchayats
(B) Article 41	2. Right to work
(C) Article 44	3. Uniform Civil Code
(D) Article 48	4. Organization of agriculture and animal husbandry

Code:

	A	B	C	D
(a)	1	2	3	4
(b)	2	3	1	4
(c)	1	3	4	2
(d)	3	2	4	1

110. Which one of the following is not correctly matched?

- (a) Article 39A-Equal Justice and Free Legal Aid
- (b) Article 40-Organization of Village Panchayats
- (c) Article 44-Uniform Civil Code
- (d) Article 48-Separation of Judiciary from Executive

111. The concept of Fundamental Rights has been taken from the Constitution of which country?

- (a) France
- (b) Britain
- (c) United States of America
- (d) Russia

112. The Chauri Chaura incident took place on-

- (a) 1<sup>st</sup> February, 1922
- (b) 2<sup>nd</sup> February, 1922
- (c) 4<sup>th</sup> February, 1922
- (d) 5<sup>th</sup> February, 1922

113. Which of the following Movement is not related with Gandhiji?

- (a) Swadeshi Movement
- (b) Khilafat Movement
- (c) Individual Satyagraha
- (d) Quit India Movement

114. Who from among the following, had started 'Young Bengal Movement' in India?

- (a) Redhakanta Deb
- (b) Henry Louis Vivian Derozio
- (c) Keshab Chandra Sen
- (d) Charles Wilkinson

115. Who was the leader of Munda revolt?

- (a) Birsa
- (b) Kanhu
- (c) Tilka Manjhi
- (d) Siddhu

116. First Irrigation Commission in India was formed in the year  
 (a) 1906 (b) 1889  
 (c) 1901 (d) 1900
117. Khwaja Moinuddin Chishti was the disciple of-  
 (a) Abdul Quadir Gilani  
 (b) Khwaza Abu Yusuff  
 (c) Khwaza Usman Haruni  
 (d) Khwaza Maudud
118. Match List-I with List-II and select the correct answer from the code given below the lists.
- | List-I<br>(Building)   | List-II<br>(Builders) |
|------------------------|-----------------------|
| A. Sultan Garhi        | 1. Alauddin Khilji    |
| B. Red Palace          | 2. Qutubuddin Aibak   |
| C. Jamat Khana Masjid  | 3. Iltutmish          |
| D. Dhair Din Ka Jhopra | 4. Balban             |
- Code:
- |     | A | B | C | D |
|-----|---|---|---|---|
| (a) | 3 | 4 | 1 | 2 |
| (b) | 3 | 4 | 2 | 1 |
| (c) | 4 | 3 | 1 | 2 |
| (d) | 4 | 3 | 2 | 1 |
119. About which sultan of Delhi it is considered that he followed the policy of 'Blood and Iron'?
- (a) Iltutmish  
 (b) Balban  
 (c) Jalaluddin Firoz Khilji  
 (d) Ferozshah Tughlaq
120. Which one of the following statements is not about Shankaracharya, Saint of the 8th century?
- (a) He established four religious centres in different parts of India.  
 (b) He countered the spread of Buddhism and Jainism.  
 (c) He named Prayag as Teerthraj  
 (d) He propagated Vedanta.
121. In which of the following stupas, the features of a platform with 'Aryaka-Pillars' are found?
- (a) Nagarjunikonda  
 (b) Ghantshal  
 (c) Amaravati  
 (d) Bodhgaya
122. Arrange the name of the following Chola rulers in correct chronological order and select the answer from the code given below :
- Rajraja I
  - Rajadhiraj – I
  - Vikram Chola
  - Kulottunga – I
- Code:  
 (a) 1, 2, 3 and 4  
 (b) 2, 1, 4, and 3  
 (c) 3, 2, 4, and 1  
 (d) 1, 2, 4, and 3
123. According to Arthashastra 'Seetadhyaksh' was associated with  
 (a) Agriculture  
 (b) Trade  
 (c) Women Welfare  
 (d) Army
124. The entry of women as a Bhikshuni into Buddhist Sangh was allowed by Gautam Buddha at-  
 (a) Shravasti (b) Vaishali  
 (c) Rajgrih (d) Kushinagar
125. Mantra famous as Gayatri Mantra is found in which text at first?  
 (a) Bhagwad Gita  
 (b) Atharva Veda  
 (c) Rig-Veda  
 (d) Manu Smriti

### Section-C : General Hindi

126. दोहा और रोला छंदों को मिलाने से बनने वाला छंद है—  
 (a) घनाक्षरी (b) छप्पय  
 (c) मनहर कवित्त (d) कुंडलिया
127. निम्नलिखित में से कौन-सी बोली पश्चिमी हिंदी की नहीं है?  
 (a) खड़ी बोली (b) छत्तीसगढ़ी  
 (c) हरियाणवी (d) बुंदेली
128. 'नाक का बाल होना'— इस मुहावरे के उपयुक्त अर्थ का चयन कीजिये:  
 (a) मुसीबत होना  
 (b) अवसरवादी होना  
 (c) अत्यन्त प्रिय होना  
 (d) आफत का मारा
129. 'घोंघा बसंत' मुहावरे का अर्थ है—  
 (a) वश में होना (b) मूर्ख  
 (c) बुद्धिमान (d) व्यवहार कुशल
130. वीर पुत्र को जन्म देने वाली स्त्री को कहते हैं—  
 (a) वीरांगना (b) वीर महिषी  
 (c) वीरात्मा (d) वीरप्रसू
131. 'अप्रत्याशित' शब्द के लिए कौन-सा वाक्य उपयुक्त है?  
 (a) जिसकी आशा की गई हो।  
 (b) जिसकी आशा न की गई हो।  
 (c) जिसकी संभावना हो।  
 (d) जो अवश्य होने वाला हो।

132. इनमें संख्यावाचक विशेषण कौन सा है?

- (a) सात (b) काला  
(c) रावण (d) खट्टा

133. सूची-I को सूची-II से सुमेलित कीजिए तथा सूचियों के नीचे दिए गए कूट से सही विकल्प चुनिए-

सूची-I (विशेषण)	सूची-II (विशेष्य)
(A) ऐतिहासिक	(1) महिलाएँ
(B) विदुषी	(2) कथा
(C) महती	(3) घटना
(D) रोचक	(4) पुस्तक

कूट :

A	B	C	D
(a) 1	2	3	4
(b) 1	2	4	3
(c) 3	2	1	4
(d) 3	1	2	4

134. 'अंकुश' का ठीक विपरीत शब्द लिखें:

- (a) निरंकुश (b) बेलगाम  
(c) उद्वंड (d) स्वच्छन्द

135. निम्नलिखित शब्दों में से 'अकाल' शब्द का विलोम शब्द छाँटिये:

- (a) दुकाल (b) महाकाल  
(c) दुष्काल (d) सुकाल

136. उच्छिष्ट का उपयुक्त विपरीतार्थक शब्द है-

- (a) अभक्ष (b) अनुच्छिष्ट  
(c) अखाद्य (d) अभुक्त

137. एक का अर्थ सत्य है

- (a) नियत (b) निर्यात  
(c) नीयन (d) नियन्ता

138. 'मीमांसा' का सही पर्यायवाची शब्द है-

- (a) स्वरूप (b) सुविज्ञता  
(c) समालोचन (d) निष्क्रिय

139. 'विद्युत' का पर्यायवाची है-

- (a) शर्वरी (b) दामिनी  
(c) तनया (d) रमणी

140. अशुद्ध वर्तनी वाला शब्द है

- (a) पुरस्कार (b) पुरुस्कार  
(c) तिरस्कार (d) परिष्कार

141. निम्नलिखित में से कौन सा शब्द अशुद्ध है?

- (a) वाल्मीकी (b) वाल्मीकि  
(c) कालिदास (d) अतिथि

142. निम्नलिखित वाक्यों में एक वाक्य अशुद्ध है, उसे पहचानिए-

- (a) सब्जी मैंहगी है।  
(b) उपरोक्त पंक्ति अच्छी नहीं है।  
(c) मोहन पौधे सींच रहा है।  
(d) गीता ने पत्र लिखा।

143. 'पाण्डव' शब्द में इनमें से प्रयुक्त प्रत्यय है

- (a) अव  
(b) व  
(c) अ  
(d) इनमें से कोई नहीं

144. 'आखर' शब्द का तत्सम रूप है

- (a) आगर  
(b) आखिर  
(c) आँचर  
(d) अक्षर

145. हरीतकी का तद्भव शब्द है -

- (a) हरड़ (b) हार  
(c) हरियाली (d) हरा

146. 'आजीवन' में समास है

- (a) तत्पुरुष  
(b) अव्ययीभाव  
(c) द्वंद्व  
(d) कर्मधारय

147. 'अत्यधिक' में कौन-सी संधि है।

- (a) गुण संधि  
(b) वृद्धि संधि  
(c) यण संधि  
(d) अयादि संधि

148. 'अनेक' शब्द है-

- (a) एकवचन  
(b) बहुवचन  
(c) द्विवचन  
(d) इनमें से कोई नहीं

149. किस वाक्य में सकर्मक क्रिया है?

- (a) श्याम खाता है।  
(b) साँप सरकता है।  
(c) सूरज निकलता है।  
(d) गाय बैठती है।

150. एक शब्द में महाप्राण व्यंजनों का प्रयोग नहीं हुआ है

- (a) जोगन (b) घाघ  
(c) झूठ (d) खीझ



DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.

2025

SERIES

A

Time : 2 Hours

CODE : YCT - 02

SUB : Preliminary Examination

Section-A : Engineering Aptitude : Q. No. 1 to 100

Section-B : General Knowledge : Q. No. 101 to 125

Section-C : General Hindi : Q. No. 126 to 150

Max. Marks : 300

Write your Roll Number

In numbers

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In the box

in words

--

To mark Answer use Black Ball-point Pen only.

Candidate must read all the instructions before writing the answers.

You are to mark read all the instructions before writing the answers.

You are to mark your answer on Answer-Sheet only. After the examination is over, handover the original Answer-Sheet to the Invigilator.

## IMPORTANT INSTRUCTIONS

1. Answer all questions. All questions carry equal marks.
2. The Candidate should indicate the correct Roll Number, Subject, Paper Code and its Series on the Answer- Sheet, otherwise the Answer-Sheet will not be evaluated and the candidate will solely responsible for it.
3. **This Test Booklet contains 150 questions.** Each question has four (4) options which are given below the questions. Only one option is correct out of four. You are required to darken the circle corresponding to the alternative which you consider to be the correct or most appropriate answer in the Answer-Sheet by Black Ball-point Pen.
4. Do not write anything on the cover page of the Test Booklet except Roll Number. Use the space for rough work given in the last two pages of Test Booklet.
5. If you happen to find that the Booklet issued to you does not have all the pages properly printed or it has any other deficiency, then you need to approach the Invigilator to get another Booklet of same Series and Code.
6. In this question booklet questions are printed in English languages.
7. **Penalty for wrong answers :**  
**THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE ANSWER SHEET.**
  - (i) There are four alternatives for the answer to every question. For each questions for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.
  - (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.
  - (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.

## Section-A : Engineering Aptitude

1. **What does crop breeding using molecular markers aim to achieve in agriculture?**
  - (a) Increase the number of pests
  - (b) Improve the quality and disease resistance of crops
  - (c) Reduce water usage for irrigation
  - (d) Eliminate the need for fertilizers
2. **Which of the following is an example of AI use in enhancing public transport services?**
  - (a) Autonomous buses navigating traffic
  - (b) Predictive maintenance for buses
  - (c) AI-powered route planning based on passenger demand
  - (d) All of the above
3. **Which technology is crucial for maintaining the safety of autonomous vehicles while driving in complex environments?**
  - (a) Radar
  - (b) Cameras and sensors
  - (c) LiDAR
  - (d) All of the above
4. **Which infectious disease recently saw a resurgence due to a decrease in vaccination rates globally in 2024?**
  - (a) Polio
  - (b) Measles
  - (c) Tuberculosis
  - (d) Malaria
5. **In 2024, which university successfully demonstrated the first photonic quantum computer that could potentially outperform classical computers in certain tasks?**
  - (a) MIT
  - (b) Stanford University
  - (c) University of Oxford
  - (d) University of California, Berkeley
6. **Which of the following NLP applications helps in analyzing customer feedback for sentiment?**
  - (a) Named entity recognition
  - (b) Sentiment analysis
  - (c) Machine translation
  - (d) Text summarization
7. **What is the focus of CAR-T cell therapy advancement in 2024?**
  - (a) Solid tumors
  - (b) Leukemia
  - (c) Autoimmune diseases
  - (d) Neurodegenerative disorders
8. **What is the main challenge of nanotechnology in 2024?**
  - (a) Scalability
  - (b) Energy consumption
  - (c) Ethical concerns
  - (d) Security issues
9. **Bauxite is**
  - (a) Hydrated aluminium oxide having dull luster
  - (b) Hydrated aluminium oxide having shining luster
  - (c) Hydrated aluminium oxide having vitreous luster
  - (d) Barium sulphate having vitreous luster
10. **Which of the following materials is primarily composed of calcium carbonate and is commonly used as a building material?**
  - (a) Concrete
  - (b) Brick
  - (c) Steel
  - (d) Limestone
11. **Poor surface finish and fast wear of tool are the characteristics of**
  - (a) continuous chips with built-up edges
  - (b) discontinuous chips
  - (c) continuous chips
  - (d) inhomogeneous chips
12. **Which of the following is not the characteristic of explosive forming?**
  - (a) Low capital investment
  - (b) Component formed in one shot
  - (c) Both die parts-male and female are needed
  - (d) Large size parts can be formed easily
13. **Carbon footprint means-**
  - (a) Carbon dioxide emissions by a Coal industry
  - (b) Total sets of Carbon gas emissions caused by an organization, event, or a person
  - (c) Total sets of greenhouse gas emissions caused by an organization, event or a person
  - (d) Carbon dioxide emissions by humans
14. **As a result of global warming the frequency and severity of which of the following are increasing due to global warming?**
  - (a) Cyclones only
  - (b) Storms only
  - (c) Hurricanes only
  - (d) All of the above
15. **Which one of the following phenomenon cause adverse changes in global climate pattern and wreak havoc world wide in the form of floods and droughts?**
  - (a) Carbon Dioxide
  - (b) El-Nino
  - (c) Tropical cyclones
  - (d) Itai-Itai

16. **When is the World Earth Day Celebrated?**  
 (a) 4 April (b) 22 April  
 (c) 1 May (d) 23 March
17. **What does the “Do not Stack” label mean?**  
 (a) The package can be stacked safely  
 (b) Stacking the package may cause damage  
 (c) The package should be opened immediately  
 (d) The package requires refrigeration
18. **Which of the following is a key feature of a “push-back” racking system?**  
 (a) Products are stored on pallets that are pushed back from the front by new stock.  
 (b) Products are stored using gravity to push them forward.  
 (c) Products are placed on shelves without the use of pallets.  
 (d) The racks are static and do not move.
19. **What is the first step in designing a material handling system?**  
 (a) Choosing equipment  
 (b) Analyzing material flow  
 (c) Training workers  
 (d) Installing equipment
20. **What is a consumer product?**  
 (a) Products that are used by businesses for production  
 (b) Products bought for personal use  
 (c) Products used for industrial purposes  
 (d) Products that are raw materials
21. **Which of the following types of chlorination is recommended for water when there is an epidemic in the locality or when water quality is liable to sudden fluctuations?**  
 (a) Break point chlorination  
 (b) Super chlorination  
 (c) Plain chlorination  
 (d) Dechlorination
22. **What is the correct order of the following stages in a case of cholera:**  
**A. Stage of evacuation**  
**B. Stage of recovery**  
**C. Stage of collapse**  
 (a) C, B, A only  
 (b) B, A, C only  
 (c) A, C, B only  
 (d) A, B, C only
23. **The Estimated Average Requirements (EAR) is an estimated nutrient adequacy of ..... of the healthy population.**  
 (a) 50% (b) 90%  
 (c) 98% (d) 10%
24. **Which of the following is not a component of the health belief model?**  
 (a) Perceived barriers  
 (b) Perceived severity  
 (c) Perceived behavioral control  
 (d) Perceived susceptibility
25. **Which among the following is closely associated with intellectual property rights?**  
 (a) MFN (b) TRIMS  
 (c) GATS (d) TRIPS
26. **Geographical indications Registry (GI) is located at -**  
 (a) Delhi (b) Chennai  
 (c) Nagpur (d) Kolkatta
27. **The Trade Marks Registry was established in India in the year -**  
 (a) 1940 (b) 1999  
 (c) 2005 (d) 1911
28. **Meaning of Copyright is given under which Section of Copyright Act 1957?**  
 (a) Section 13  
 (b) Section 14  
 (c) Section 15  
 (d) Section 18
29. **As per National Intellectual Property Rights Policy published on 12<sup>th</sup> May 2016 the objective 7 is**  
 (a) Generation of IPRs  
 (b) Human Capital Development  
 (c) Commercialization of IPRs  
 (d) Legal and Legislative framework
30. **W.A. Shewart is known for providing the concept of**  
 (a) Acceptance sampling plan  
 (b) Control chart  
 (c) Six sigma  
 (d) Zero defect
31. **Rearrange the following steps involved in construction of pareto diagram in the proper order.**  
 1. Determine how relative importance is to be judged.  
 2. Decide on the data categorization system.  
 3. Rank the categories from most important to least important.  
 4. Plot a bar graph.  
 5. Compute the cumulative frequency of the data categories in their chosen order.  
**Select the correct answer using the code given below?**

- (a) 1, 3, 2, 4, 5  
(b) 2, 3, 1, 5, 4  
(c) 2, 1, 3, 5, 4  
(d) 1, 2, 3, 4, 5
32. Consider the following statements regarding Quality Circle :
1. It is a small group of people working in different areas of an organization with multiple expertises.
  2. It consists of people who volunteer themselves.
  3. It is a human resource development technique.
  4. It is a problem-solving forum.
- Which of the above statements are correct?
- (a) 2, 3 and 4 only  
(b) 1, 2 and 3 only  
(c) 1, 3 and 4 only  
(d) 1, 2 and 4 only
33. **Statement (I):** Agency-loyalty is acting to fulfill one's contractual duties to an employer.  
**Statement (II):** Agency-loyalty is entirely a matter of actions, whatever its motives.
- (a) Both statement (I) and Statement (II) are individually true and statements (II) is the correct explanation of statements (I)  
(b) Both Statement (I) and Statements (II) are individually true but statements (II) is not the correct explanation of statements (I)  
(c) Statement (I) is true but statements (II) is false  
(d) Statement (I) is false but statements (II) is true
34. **The Ethical skills are:**
- (a) Care of possessions, modesty, posture, self-reliance, tidy appearance  
(b) Good behaviour, good manners, good relationships, good environment  
(c) Attention, calmness, concentration, self-confidence, self-esteem  
(d) Code of conduct, responsibility, efficiency, perseverance, punctuality
35. Which one the following statements is NOT correct regarding human values?
- (a) Values mean an in-built mechanism which distinguished the right from the wrong.  
(b) Values provide us with a unique, personal, and moral template that we use subconsciously to assess and judge the intentions and actions of other and ourselves.  
(c) Values serve the process of 'becoming' in the sense of transformation of the level of consciousness to purer, higher levels.  
(d) Values are essentially objective while skills are subjective.
36. 'Groupthink', a noteworthy feature of the organizational setting within which engineers work and deliberate in groups, has been suggested by.
- (a) Abraham Maslow  
(b) Irving Janis  
(c) B.F. Skinner  
(d) Christopher Meyers
37. Which one of the following characteristic features distinguishes Caro Gilligan's theory from Kohlberg's theory with regard to the moral development?
- (a) Transactional approach  
(b) Logic and rule centric  
(c) More of caring  
(d) Justice
38. What is the purpose of international disaster response laws rules and principles 2007.
- (a) To provide legal guidance for disaster response actors  
(b) To establish liability for disaster response activities.  
(c) To regulate the provision of financial assistance to the affected states  
(d) To promote accountability for disaster response activities
39. Which of the following is given to protect CBRN hazards?
- (a) VPE (b) IPE  
(c) XPE (d) APE
40. Which part of the geological epoch, Ice age is referred?
- (a) Miocene (b) Pleistocene  
(c) Pliocene (d) Eocene
41. In equivalent static method, the Sa/g value is decided corresponding to fundamental time period of the building using:
- (a) design response spectrum  
(b) frequency response curve  
(c) zoning map  
(d) transmissibility ratio
42. Which of the following is not a secondary source of energy?
- (a) Solar power station  
(b) Diesel power station



- (c) Nuclear power station  
(d) Thermal power station
43. Which of the following statements expresses the main function of a steam generator?  
(a) In transfer the heat produced by the combustion of fuel to water and, ultimately, produces steam.  
(b) It transfer the water directly to the feed pump and develops electric power.  
(c) It transfer the heat to the atmospheric air and thereby, causes condensation of the steam.  
(d) It reduces the water energy storage capacity and diminishes the steam generation.
44. For which of these the Pelton impulse turbine is the best suited?  
(a) High heads  
(b) Low heads  
(c) Medium heads  
(d) Low and medium heads
45. Charcoal canister is used to control the?  
(a) Cetane number of CI engine fuel  
(b) Octane number of SI engine fuel  
(c) Fluctuation of the speed of engine  
(d) Evaporation emission of a petrol engine
46. The efficiency of Otto cycle  
(a) decreases with compression ratio.  
(b) increases with compression ratio.  
(c) is not affected by compression ratio.  
(d) first decreases and then increases with compression ratio.
47. Megger is a combination of-  
(a) Generator  
(b) Motor  
(c) Generator and Ohmmeter  
(d) Both Motor and Generator
48. The fixed coil in a dynamometer wattmeter is the-  
(a) Current coil  
(b) Power coil  
(c) Pressure coil  
(d) Dynamic coil
49. Shunt is connected in parallel to ammeter to-  
(a) Increase the sensitivity  
(b) Increase the resistance  
(c) Measure heavy current  
(d) Decrease the sensitivity
50. Match List-I (Term) with List-II (Statement) and select the correct answer using the code given below the lists:

List-I	List-II
A. Relative error	1. The ability of the device to give identical output when repeat measurement are made with the same input signal.
B. Precision	2. The ratio of difference between measured value and the true value to the true value of the measurand
C. Calibration	3. The smallest increment in measurand that can be detected with certainty by the instrument
D. Resolution	4. The process of making adjustments on the scale so that the instrument reading conform to an accepted standard

Codes:

	A	B	C	D
(a)	2	3	4	1
(b)	4	1	2	3
(c)	4	3	2	1
(d)	2	1	4	3

51. The damping provided in moving iron type of instruments is of type:

- (a) spring (b) air friction  
(c) oil friction (d) eddy current

52. Match the List-I (Power Station) with List-II (States) and select the correct answer using the codes given below the lists—

List-I (Power house)	List-II (States)
A. Kothagudem	1. Andhra Pradesh
B. Raichur	2. Gujarat
C. Mettur	3. Karnataka
D. Wanakbori	4. Tamil Nadu




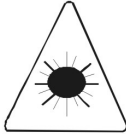
Codes :

	A	B	C	D
(a)	4	2	1	3
(b)	1	3	4	2
(c)	4	3	1	2
(d)	1	2	4	3

53. What is solar heating and cooling?

- (a) Use solar energy to regulate the internal temperature of a given space  
(b) Use solar energy to regulate the temperature of environment

- (c) Use solar energy to monotonically increase the internal temperature of a given space  
(d) Use solar energy to monotonically decrease the temperature of a given space
54. Which one of the following is a terrestrial type of ecosystem?  
(a) Limnetic (b) Estuary  
(c) Prairie (d) Reefs
55. Inspection is the tool for zero defect production which .....  
(a) Sorts out components for zero defect  
(b) Feeds data for S. Q. C  
(c) initiates action to prevent rejects  
(d) take action to calibrate the measuring instruments periodically
56. Which of the following is a part of preventive maintenance?  
(a) Lubrication  
(b) All of these  
(c) Servicing  
(d) Inspection
57. Daily maintenance of machines is known as :  
(a) Break, down maintenance  
(b) None of these  
(c) Routine maintenance  
(d) Preventive maintenance
58. Consider the following features relating to Robot kinematics with reference to SCARA Robot:  
1. Shoulder and elbow rotational axes are vertical.  
2. The Robot could perform insertion tasks along the vertical direction.  
3. Its general configuration is analogous to that of the human arm.  
Which of the above features are correct?  
(a) 1 and 2 only  
(b) 1 and 3 only  
(c) 2 and 3 only  
(d) 1, 2 and 3 only
59. What is done once all the components are solved in GSP?  
(a) Testing of the goal again  
(b) The problem is solved so quit  
(c) Pick up any operator to test the goal  
(d) None of above
60. What is the difference between W1ij and W2ij?  
(a) Layers are different  
(b) Weights are different  
(c) Error is different  
(d) All of these
61. Automatic detection and alarm system is NOT required for  
(a) Car parking electric room  
(b) Car parking cabin  
(c) Car parking area  
(d) Car parking other area
62. In the normal hill-climbing process, the end state depends on  
(a) The search process  
(b) The application of heuristic function  
(c) How the next state is chosen  
(d) The start state
63. Which of the following Acts is required for the commercial emailers in sending out messages that advertise a commercial product or service?  
(a) Controlling the assault of non-solicited pornography and marketing Act  
(b) Communications assistance of law enforcement Act  
(c) Communications Act of 1934  
(d) Communications decency Act
64. The unit commonly used to measure the speed of data transmission is \_\_\_\_  
(a) Mega Hertz  
(b) Character Per Second  
(c) Bit Per Second  
(d) Nano Second
65. In a software project, COCOMO (Cost Constructive Model) is used to estimate  
(a) Effort and duration based on the size of the software  
(b) Size and duration based on the effort of the software  
(c) Effort and cost based on the size of the software  
(d) Size, effort and duration based on the cost of the software
66. Consider the following statements regarding the failure in the network:  
1. Bit errors typically occur because outside forces, such as lightning strikes, power surges, and microwave ovens, interfere with the transmission of data.  
2. One of the main difficulties in dealing with lost packets is distinguishing between a packet that is indeed lost and one that is merely late in arriving at the merely late in arriving at the destination.

3. The failure can be caused by software that crashes, a power failure, of a reckless backhoe operator.
- Which of the above statements is/are correct?**
- (a) 1 only (b) 1 and 2 only  
(c) 2 and 3 only (d) 1, 2 and 3
67. **Which one of the following documents are created and handled by the Common Gateway interface (CGI) technology?**
- (a) Dynamic documents  
(b) Static documents  
(c) Tampered documents  
(d) Linked documents
68. **What is the background color of the warning sign?**
- (a) Red color  
(b) Blue color  
(c) Yellow color  
(d) Black color
69. **Which of these symbol is used for showing toxic hazard–**
- (a)  (b) 
- (c)  (d) 
70. **Consider the following provisions regarding safety on highways, where major improvement works may also be in progress :**
1. Highly visible barricades to avoid falling of vehicles in deep interspaces ahead (including drainages)
  2. Wire-net provisions to ward off road slippages
  3. Signages for wild-animals crossing (like deer, elephant, etc.)
  4. Signages on minor gradients
- Which of the above are relevant?**
- (a) 1, 2, 3 and 4  
(b) 1, 2 and 4 only  
(c) 1, 3 and 4 only  
(d) 1, 2 and 3 only
71. **Which of the following are the methods of scheduling?**
- (a) Bar charts or Gantt charts





- (b) Milestone charts  
(c) Network analysis  
(d) All of the above
72. **What are the factors that contribute to decline in unit cost with respect to the accumulated volume of production?**
- (a) Pioneering stage, rapid growth stage, and economies of scale stage  
(b) Learning effects, Technological improvements, and Economies of scale  
(c) Technological improvements stage, maturity stage, and decline stage  
(d) Pioneering stage, Rapid growth stage, and decline stage
73. **Phillip Kotler argues that the 4 Ps which represent the seller's thinking more than buyer's thinking can be translated into the 4 Cs. Match the following?**

4 Ps of Marketing Planning		2 Cs of Marketing Planning	
A.	Product	I.	Customer communication
B.	Price	II.	Customer value
C.	Place	III.	Customer costs
D.	Promotion	IV.	Customer convenience

Select the correct matching using the code given below:

- A B C D
- (a) (ii) (iii) (iv) (i)  
(b) (ii) (iii) (i) (iv)  
(c) (i) (iv) (iii) (ii)  
(d) (i) (iv) (ii) (iii)
74. **Gantt chart is used for :**
- (a) Resource management  
(b) Production scheduling  
(c) Large number of tasks  
(d) One time update
75. **Which one of the following is NOT a factor for large scale diversification into unrelated areas by some of the industry conglomerate in India?**
- (a) Restriction in growth in the existing line of business  
(b) Policies with respect to imports, duties, pricing, and reservations  
(c) Opening up of newer areas of investments  
(d) Desire not to avail tax incentives
76. **From ecological considerations, the minimum level of dissolved oxygen (D.O) necessary in rivers and stream is**

- (a) 0 ppm (b) 40 ppm  
(c) 4 ppm (d) 100 ppm
77. Artificial recharge of groundwater can be achieved by which of the following?  
i. Anicuts  
ii. Gully plugging  
iii. Ponds  
iv. Roof top rainwater harvesting structures  
(a) (i) and (ii)  
(b) (iii) and (iv)  
(c) (i), (ii) and (iii)  
(d) (i), (ii), (iii) and (iv)
78. In a water distribution system, the domestic water demand to be considered as per IS : 1172- 1993 is:  
**OR**  
For basic requirements of water supply, drainage and sanitation, as per the IS code, what is the domestic water demand in Indian cities and towns?  
**OR**  
What is the minimum value of water supply per head per day for house for Low Income Group (LIG) and Economical Weaker Section(EWG) depending upon prevailing conditions, according to IS-Code 1172-1993?  
(a) 110 litres per head per day  
(b) 100 litres per head per day  
(c) 195 litres per head per day  
(d) 135 litres per head per day
79. Which source of water among the following is a surface source?  
(a) Springs (b) Wells  
(c) Lakes (d) None of these
80. A stream which contributes ground water augmentation is known as  
(a) Influent stream  
(b) Effluent stream  
(c) Perennial stream  
(d) Ephemeral stream
81. A system undergoes a process such that  $\int \frac{\delta Q}{T} = 0$  and  $\Delta S > 0$ , the process is  
(a) not possible  
(b) irreversible and adiabatic  
(c) isothermal  
(d) isobaric
82. The identity  $\delta Q = pdv + du$  is true for :  
(a) Any process and open system  
(b) Any process and closed system  
(c) Irreversible process and open system  
(d) Reversible process and closed system
83. "Heat and work are mutually convertible"  
This statement is called  
(a) Second law of thermodynamics  
(b) First law of thermodynamics  
(c) Joule's law  
(d) Both (a) and (b)
84. Which of the following condition is applicable to ideal gas law?  
(a) Low Temperature, High Pressure  
(b) High Temperature, Low Pressure  
(c) Low Temperature, Low Pressure  
(d) High Temperature, High Pressure
85. The bonding in ceramics is  
(a) Ionic  
(b) Metallic  
(c) Covalent  
(d) Partially ionic and partially covalent
86. The photoelectric current depends on which of the following factors ?  
1. The frequency of the incident light.  
2. The intensity of the incident light.  
3. The potential difference between the electrodes  
4. The photosensitivity of the non-metal  
(a) 1, 2 and 4 (b) 1, 2 and 3  
(c) 1, 3 and 4 (d) 2, 3 and 4
87. The following material is not used for making a piezoelectric transducer  
(a) Rochelle salt  
(b) Barium titanate  
(c) Chromium sulphide  
(d) Quartz
88. Consider the following statements regarding the gas carburizing:  
1. Case depth can be obtained accurately.  
2. More floor space is required than pack carburizing.  
3. Process is rapid as less time is required than in pack carburizing.  
Which of the above statements are correct?  
(a) 1 and 2 only  
(b) 1 and 3 only  
(c) 2 and 3 only  
(d) 1, 2 and 3
89. Consider the following assumptions made while developing the ionic packing theory:  
1. Cations and anions are spherical but these spheres are not hard.

2. Cations are always smaller than anions.
3. Each cation would tend to be surrounded by the maximum number of anions permitted by geometry.
4. Cations and anions do not touch each other.
- Which of the above assumptions are correct?
- (a) 1 and 3 (b) 1 and 4  
(c) 2 and 4 (d) 2 and 3
90. If a line is inclined to the H.P. and parallel to the V.P., then it has
- (a) no trace  
(b) only V.T. but no H.T.  
(c) both H.T. and V.T.  
(d) only H.T. but no V.T.
91. When the receding lines are drawn to full size scale and the projectors inclined at an angle of  $30^\circ$  or  $45^\circ$  or  $60^\circ$  to the plane of projection, such oblique projection is known as
- (a) Cabinet projection  
(b) Vertical projection  
(c) Cavalier projection  
(d) Horizontal projection
92. Match the following:
- | Object |                                    | Convection |   |
|--------|------------------------------------|------------|---|
| 1.     | Long breaks line                   | i.         |  |
| 2.     | Interrupted view                   | ii.        |  |
| 3.     | Section through thin walled metals | iii.       |  |
| 4.     | Centre line, line of symmetry      | iv.        |  |
- (a) 1 – (i), 2 – (ii), 3 – (iii), 4 – (iv)  
(b) 1 – (i), 2 – (iii), 3 – (ii), 4 – (iv)  
(c) 1 – (ii), 2 – (iv), 3 – (iii), 4 – (i)  
(d) 1 – (ii), 2 – (i), 3 – (iii), 4 – (iv)
93. Which one of the following lines is used to represent the outlines of adjacent parts or alternative and extreme positions of movable parts?
- (a) Continuous thick line  
(b) Continuous thin line  
(c) Chain thin double-dashed line  
(d) Dashed thin line
94. Consider the following statements regarding Golden Ratio for positive integers
1. It is the ratio of difference of two numbers and the smaller number  
2. It is the ratio of sum of two numbers and the smaller number
3. It is the ratio of the sum of two numbers and the larger number
- Which of the above statements is/are correct?
- (a) 1, 2 and 3 (b) 3 only  
(c) 2 only (d) 1 only
95. It is important to carefully identify the needs and expectations of the customer prior to beginning the design of mechanical device. One of the step in formulating usually quantitative statements of expected performance levels, environmental conditions in which the device must operate, limitations on space or weight, or available materials and components that may be used. These are part of which one of the following elements of design?
- (a) Functions  
(b) Evaluation criterias  
(c) Design requirements  
(d) Drawings
96. In which projection a plane may be at any angle with horizontal.
- (a) Isometric projection  
(b) orthographic projection  
(c) Oblique projection  
(d) Reference projection
97. If the ionic radius of iron is 1.24 Å, which of the following would be the approximate bond length in Fe-Fe?
- (a) 1.24 Å (b) 0.62 Å  
(c) 2.48 Å (d) 0.31 Å
98. A thermodynamic system undergoes
- (a) Changes in pressure  
(b) Changes in volume  
(c) Changes in internal energy  
(d) All of the above
99. Highest specific yield from an aquifer will be from
- (a) Water bearing formation of clay  
(b) Water bearing formation of coarse gravel  
(c) Both formations of clay and coarse gravel will have equal specific yield  
(d) As formation of coarse gravel will have more pores these will not hold any water
100. Construction project management involves all the following stages EXCEPT:
- (a) project marketing  
(b) project scheduling  
(c) project controlling  
(d) project planning

## Section-B : General Knowledge

101. Which of the following is not correctly matched?

- (a) Bailadila - Madhya Pradesh
- (b) Kemmangundi - Karnataka
- (c) Singhbhum - Jharkhand
- (d) Mayurbhanj - Odisha

102. Which of the following regions of India is highly affected from soil erosion?

- (a) Malwa plateau
- (b) U.P. Terai
- (c) Andhra coastal region
- (d) Chambal valley

103. Which of the following is the highest waterfall in India?

- (a) Jog fall
- (b) Kunchikal fall
- (c) Rakim Kund fall
- (d) Keoti fall

104. Identify the only tributary of River Ganges which rises in the plains—

- (a) Son
- (b) Sharda or Saryu
- (c) Gomti
- (d) Ram Ganga

105. Which of the following is the southern most hill range of India?

- (a) Nilgiri hills
- (b) Sirumali hills
- (c) Nallamalas hills
- (d) Cardamom hills

106. Which one of the following did NOT serve as Vice President before assuming the office of the President of India?

- (a) Dr. Shankar Dayal Sharma
- (b) Neelam Sanjiva Reddy
- (c) Dr. Zakir Hussain
- (d) R. Venkatraman

107. Center and State Governments gets authorization-

- (a) From Constitution of India
- (b) From President of India
- (c) From Prime Minister of India
- (d) From the Parliament of India

108. Which of the following Articles of the Indian Constitution guarantees equality of opportunity to all citizens of India in matters relating to public employment?

- (a) Article 15
- (b) Article 16(1) and 16(2)
- (c) Article 16(3)
- (d) Article 16(3), (4) and (5)

109. Match List-I and List-II and select the correct answer from the codes given below:

	List-I	List-II
(A)	Constitutional Amendments	1. Article 360
(B)	Finance Commission	2. Article 312
(C)	Financial Emergency	3. Article 280
(D)	All India Services	4. Article 368

Codes:

	A	B	C	D
(a)	1	3	4	2
(b)	4	3	1	2
(c)	4	1	3	2
(d)	3	1	4	2

110. The concept of 'The Directive Principles of State policy' in the Indian Constitution has been adopted from the Constitution of-

- (a) France
- (b) Ireland
- (c) Japan
- (d) U.S.S.R

111. The title given by British Government to Mahatma Gandhi which he surrendered during the Non-Cooperation Movement was-

- (a) Hind Kesari
- (b) Kaiser-i-Hind
- (c) Rai Bahadur
- (d) Rt. Honorable

112. During which of the following movement 'Vande Mataram' became the theme song of Indian National Movement?

- (a) Swadeshi Movement
- (b) Champaran Satyagraha
- (c) Rowlett Act Movement
- (d) Non-Cooperation Movement

113. In whose reign was English education introduced in India?

- (a) Lord William Cavendish Bentinck
- (b) Lord Hardinge
- (c) Lord Minto
- (d) Lord Dalhousie

114. Which of the following is NOT correctly matched?

(Revolts)	(Years)
(a) Neel Rebellion	1859-60
(b) Jaintiya Rebellion	1860-63
(c) Kuki Rebellion	1860-90
(d) Kuka Revolt	1832-34

115. The first battle of Panipat was fought between

- (a) Babur and Rana Sanga
- (b) Babur and Ibrahim Lodi
- (c) Babur and Jai Singh
- (d) Babur and Timur

116. Vijay Stambha of Chittore was constructed by-  
 (a) Rana Sanga  
 (b) Rana Kumbha  
 (c) Rana Pratap  
 (d) Rana Uday Singh
117. Who was the founder of Pal dynasty?  
 (a) Dharmapal (b) Devpal  
 (c) Gopal (d) Rampal
118. Arrange the following temples in a chronological order and select the correct answer from the codes given below:  
 I. Brihdeeshwar temple  
 II. Gangaikonda Cholapuram temple  
 III. Shore temple of Mahabalipuram  
 IV. Sapta pagoda  
**Codes:**  
 (a) I, II, IV, III  
 (b) II, I, III, IV  
 (c) III, II, I, IV  
 (d) IV, III, I, II
119. Name the chola ruler who conquered northern Sri Lanka:  
 (a) Rajraja I  
 (b) Rajendra I  
 (c) Parantaka I  
 (d) Aditya I
120. Rummindei pillar edict of Ashoka is associated with :  
 (a) Birth place of Buddha  
 (b) Enlightenment of Buddha  
 (c) First sermon of Buddha  
 (d) Death of Buddha
121. Milinda Panho is in dialogue form between king Milind and a Buddhist monk. The monk was:  
 (a) Nagarjuna  
 (b) Nagbhatta  
 (c) Nagasena  
 (d) Kumarilbhatta
122. Match the list I with list II and choose correct answer from the codes given below the list:
- | List I          | List II                          |
|-----------------|----------------------------------|
| A. Rig-Veda     | 1. Source of music               |
| B. Yajurveda    | 2. Hymn and sacrificial laws     |
| C. Sam Veda     | 3. Tantra-mantra and subjugation |
| D. Atharva Veda | 4. Hymn and prayers              |
- Codes:**
- | A     | B | C | D |
|-------|---|---|---|
| (a) 4 | 2 | 1 | 3 |
| (b) 3 | 2 | 4 | 1 |
| (c) 4 | 1 | 2 | 3 |
| (d) 2 | 3 | 1 | 4 |

123. From which archaeological site of Indus Valley Civilization, the figures or models of boat are found?  
 (a) Dhaulabira and Bhagatrav  
 (b) Harappa and Kotdiji  
 (c) Mohenjodaro and Lothal  
 (d) Kalibangan and Ropar
124. The first Sultan of Delhi who charged 'Ghari' or Griha kar (house tax) was?  
 (a) Balban  
 (b) Alauddin Khilji  
 (c) Muhammad bin Tughlaq  
 (d) Feroz shah Tughlaq
125. Which was not among the early republics?  
 (a) Shakya  
 (b) Lichchhavi  
 (c) Yaudheya  
 (d) All the above

### Section-C : General Hindi

126. 'बिनु पद चलै सुनै बिनु काना'—पंक्ति में कौन-सा अलंकार है?  
 (a) विभावना  
 (b) विशेषोक्ति  
 (c) विरोधाभास  
 (d) अतिशयोक्ति
127. देवनागरी लिपि का विकास किस लिपि से हुआ है?  
 (a) खरोष्ठी से  
 (b) ब्राह्मी से  
 (c) शारदा से  
 (d) चित्रलिपि से
128. किस मुहावरे का अर्थ 'बहुत डर जाना' है?  
 (a) खून पानी हो जाना।  
 (b) खून सूखना।  
 (c) खून के आँसू रोना  
 (d) खून सफेद होना।
129. निम्नलिखित में से कौन-सी लोकोक्ति लाक्षणिक अर्थ सहित सही है?  
 (a) जो बोले सो घी को जाए- महाकृपण  
 (b) टके का सब खेल है-पैसा सब कुछ करता है  
 (c) जर का ज़ोर पूरा है और सब अधूरा है- स्वाभिमान  
 (d) जी जाए, घी न जाए- दान देने वाला
130. प्रज्ञाचक्षु कहते हैं  
 (a) बुद्धिमान व्यक्ति को  
 (b) तर्कशील व्यक्ति को

- (c) अन्धे ज्ञानी आदमी को  
(d) मूर्ख आदमी को
131. 'बाएँ हाथ से तीर चलाने वाला' के लिए प्रयुक्त होने वाला एक शब्द होता है -  
(a) सव्यसाची  
(b) वामउदग्र  
(c) वामहस्ती  
(d) वामशर
132. निम्नलिखित विशेष्य-विशेषण युग्मों में एक गलत है -  
(a) सर्व-सुलभ  
(b) ताजी-रोटी  
(c) कर्म-निष्ठ  
(d) भाव-विह्वल
133. 'सन्देह' का विशेषण होगा -  
(a) संदिग्ध (b) सन्देहास्पद  
(c) शंकालु (d) शक
134. निम्नलिखित में से "प्राकृतिक" शब्द का विलोम कौन सा है?  
(a) नैसर्गिक (b) स्वर्गिक  
(c) क्षणिक (d) कृत्रिम
135. निम्नलिखित में से "एकल" शब्द का विलोम क्या है?  
(a) शकल (b) विकल  
(c) पंकिल (d) बहुल
136. 'आदि' शब्द का विलोम शब्द लिखिये:  
(a) अन्तिम (b) परवर्ती  
(c) अन्त (d) विगत
137. 'औरस' का विलोम है -  
(a) प्रापक (b) विरस  
(c) नीरस (d) दत्तक
138. समान अर्थ वाला युग्म शब्द है  
(a) कथा- कथा  
(b) कड़ाही- कढ़ाई  
(c) बेला- वेला  
(d) नीरज- अम्बुज
139. निम्नलिखित में से कौन-सा शब्द 'लक्ष्मी' का पर्यायवाची नहीं है?  
(a) रमा (b) इंदिरा  
(c) कमला (d) भारती
140. 'कामदेव' का पर्यायवाची है -  
(a) पुष्पधन्वा (b) पुरन्दर  
(c) भूतेश (d) जनार्दन
141. शुद्ध वाक्य निर्देशित कीजिए।  
(a) यह रूमाल अच्छी है।  
(b) पटना में दही बहुत खट्टी है।  
(c) कई हाथियाँ जा रही हैं।  
(d) उसका मकान अच्छा है।
142. निम्नलिखित में से कौन सा विकल्प शुद्ध है?  
(a) शिखला (b) श्रंखला  
(c) श्रृंखला (d) सिंखला
143. निम्नलिखित में एक वाक्य जो शुद्ध है, वह है -  
(a) उस जंगल में प्रातःकाल का दृश्य बहुत ही सुहावना होता था।  
(b) बाघ और बकरी एक घाट पर पानी पीती हैं।  
(c) उन्होंने इस बात पर आपत्ति प्रकट की।  
(d) तमाम देश भर में यह बात फैल गयी।
144. 'मेहतरानी' में प्रत्यय है -  
(a) रानी (b) आनी  
(c) नी (d) अनि
145. 'गोबर' का तत्सम है  
(a) गुर्बर (b) गोमय  
(c) गोहवर (d) गुब्बर
146. 'नारियल शब्द का तत्सम होगा -  
(a) नवनीत (b) निर्वहण  
(c) नारिकेल (d) कठोर
147. 'व्यर्थ' में कौन-सा समास है?  
(a) तत्पुरुष समास  
(b) अव्ययीभाव समास  
(c) द्वंद्व समास  
(d) बहुव्रीहि समास
148. 'कृदंत' शब्द में कौन-सी संधि है?  
(a) व्यंजन संधि  
(b) विसर्ग संधि  
(c) यण् संधि  
(d) अयादि संधि
149. कौन सा शब्द पुल्लिङ्ग है?  
(a) दही (b) मिठाई  
(c) हवा (d) धूप
150. 'पंत प्रकृति के सुकुमार कवि हैं' - वाक्य में 'पंत' शब्द किस प्रकार के संज्ञा-भेद का उदाहरण है?  
(a) जातिवाचक संज्ञा  
(b) समुदायवाचक संज्ञा  
(c) भाववाचक संज्ञा  
(d) व्यक्तिवाचक संज्ञा





**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**2025**

**SERIES**

**A**

**Time : 2 Hours**

**CODE : YCT - 03**

**SUB : Preliminary Examination**

**Section-A : Engineering Aptitude : Q. No. 1 to 100**

**Section-B : General Knowledge : Q. No. 101 to 125**

**Section-C : General Hindi : Q. No. 126 to 150**

**Max. Marks : 300**

**Write your Roll Number**

In numbers

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**In the box**

in words

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To mark Answer use Black Ball-point Pen only.

Candidate must read all the instructions before writing the answers.

You are to mark read all the instructions before writing the answers.

You are to mark your answer on Answer-Sheet only. After the examination is over, handover the original Answer-Sheet to the Invigilator.

## **IMPORTANT INSTRUCTIONS**

1. Answer all questions. All questions carry equal marks.
2. The Candidate should indicate the correct Roll Number, Subject, Paper Code and its Series on the Answer- Sheet, otherwise the Answer-Sheet will not be evaluated and the candidate will solely responsible for it.
3. **This Test Booklet contains 150 questions.** Each question has four (4) options which are given below the questions. Only one option is correct out of four. You are required to darken the circle corresponding to the alternative which you consider to be the correct or most appropriate answer in the Answer-Sheet by Black Ball-point Pen.
4. Do not write anything on the cover page of the Test Booklet except Roll Number. Use the space for rough work given in the last two pages of Test Booklet.
5. If you happen to find that the Booklet issued to you does not have all the pages properly printed or it has any other deficiency, then you need to approach the Invigilator to get another Booklet of same Series and Code.
6. In this question booklet questions are printed in English languages.
7. **Penalty for wrong answers :**  
**THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE ANSWER SHEET.**
  - (i) There are four alternatives for the answer to every question. For each questions for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to that question will be deducted as penalty.
  - (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to that question.
  - (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be **no penalty** for that question.

**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

## Section-A : Engineering Aptitude

1. **What is the Artemis program's main objective?**
  - (a) A build a space station on Mars
  - (b) To establish a sustainable human presence on the Moons
  - (c) To explore asteroids
  - (d) To study the sun's atmosphere
2. **What role does AI play in optimizing electric vehicle (EV) charging infrastructure?**
  - (a) Automatically adjusting charging times based on grid demand
  - (b) Increasing the number of charging stations
  - (c) Monitoring battery health of electric vehicles
  - (d) Reducing the price of electricity for EV owners
3. **What system is used in modern airplanes for collision avoidance?**
  - (a) Traffic Collision Avoidance System (TCAS)
  - (b) GPS
  - (c) LiDAR
  - (d) Radar
4. **In 2024, which major tech company announced its plan to launch a photonic-based quantum computing cloud service?**
  - (a) Amazon
  - (b) Microsoft
  - (c) Apple
  - (d) Google
5. **What is one major concern with using large NLP models like GPT-3 in real-world applications?**
  - (a) They are too small to capture complex patterns.
  - (b) They are too expensive to deploy.
  - (c) They may generate harmful or biased content.
  - (d) They only work for English-language tasks.
6. **With reference to the Green Revolution in India, what does 'H' stand for in 'HYV'?**
  - (a) High
  - (b) Hike
  - (c) Hold
  - (d) Hope
7. **What is the primary purpose of AI in precision medicine in 2024?**
  - (a) Predicting genetic disorders
  - (b) Personalized treatment plans
  - (c) Drug discovery
  - (d) Monitoring patient health in real time
8. **Which of the following is true ?**
  - (a) The percentage of carbon content in high carbon steel is always greater than 5%
  - (b) The symbol used for 'Killed steel' is 'K'
  - (c) The percentage of carbon content in cast iron is less than the percentage of carbon content in mild steel
  - (d) The percentage of carbon content in cast iron is always less than 0.1%
9. **The compressive strength of a second class brick is**
  - (a) 10.5 N/mm<sup>2</sup>
  - (b) 12 N/mm<sup>2</sup>
  - (c) 7.0 N/mm<sup>2</sup>
  - (d) 4.0 N/mm<sup>2</sup>
10. **What does hydrostatic pressure in extrusion process improve?**
  - (a) Ductility
  - (b) Compressive strength
  - (c) Brittleness
  - (d) Tensile strength
11. **Which gas contributes to global warming through its greenhouse effect?**
  - (a) Nitrous oxide
  - (b) Methane
  - (c) Carbon dioxide
  - (d) More than one of the above
  - (e) None of the above
12. **Which one of the following atmospheric changes takes place due to green house effect?**
  - (a) Increase in carbon dioxide concentration in atmosphere
  - (b) Increase in humidity in atmosphere
  - (c) Increase in biological population
  - (d) Increase in wind speed
13. **Climate change is caused by-**
  - (a) Greenhouse gases
  - (b) Depletion of ozone layer
  - (c) Pollution
  - (d) All of the above
14. **Statement - I : Training should be conducted among the line and low management for ensuring the importance of environmental protection plan.**  
**Statement II : Environmental science is a developing subject and the people implementing environment strategies should remain up to date with the environmental control process.**
  - (A) Both statement (I) and Statement (II) are individually true and statements (II) is the correct explanation of statements (I)
  - (B) Both Statement (I) and Statements (II) are individually true but statements (II) is not the correct explanation of statements (I)
  - (C) Statement (I) is true but statements (II) is false
  - (D) Statement (I) is false but statements (II) is true
15. **What is the recommended storage condition for products sensitive to light?**
  - (a) High humidity and moderate temperature
  - (b) Well-lit areas with natural light
  - (c) Cool, dark and dry condition
  - (d) Warm and bright conditions

16. Which of the following is a primary purpose of a “picking list” in warehouse operations?
- To track when products are sold
  - To help identify the correct products and quantities for an order.
  - To determine which products are out of stock
  - To record product shelf life
17. Which of the following principles of material handling focuses on minimizing non-productive time during material movement?
- Ergonomic Principle
  - Idle Time Principle
  - Unit Load Principle
  - System Principle
18. Unsought products are :-
- Frequently purchased items
  - Products that consumers do not think about buying
  - Products bought on impulse
  - Luxurious items
19. Given below are two statements:  
**Statement I: Generation time is the time required for 50% of cases to occur.**  
**Statement II: Serial interval is the gap in onset between primary case and secondary case.**  
**In the light of the above statements, choose the correct answer from the options given below:**
- Both Statement I and Statement II are true
  - Both Statement I and Statement II are false
  - Statement I is correct but Statement II is false
  - Statement I is incorrect but Statement II is true
20. Fruits and vegetables discolor when bruised or cut due to
- Caramelization
  - Sulfiting
  - Dehydration
  - Enzymatic browning
21. Which of the following is placed at the top of pyramid, according to maslow's hierarchy of needs:
- Self actualization
  - Safety
  - Physical needs
  - Esteem recognition
22. As per provisions of Article IV of WTO Ministerial Conference held at this city, also saw the trade ministers of the member countries, adopt a waiver that enabled the developed and developing countries to provide preferential treatment of services and service supplier of Least Developed Country members till 2026.
- Hong Kong
  - Geneva
  - Seattle
  - Singapore
23. What is the term of Geographical Indication protection?
- Unlimited period
  - Twenty years but may be renewed from time to time for an unlimited period
  - Fifteen years but may be renewed from time to time for an unlimited period
  - Ten years but may be renewed from time to time for an unlimited period
24. According to section 19(1) of Trade Marks Act 1999 no appeal shall be admitted in High Court if it is preferred after the expiry of the period:
- 2 months
  - 3 months
  - 6 months
  - 9 months
25. Under the Copyright Act, 1957 'Broadcast reproduction right' shall subsist for a period of:
- Life time
  - 60 years
  - 25 years
  - 40 years
26. India recognises following as its Intellectual Property (IP) mascot.
- IP Master
  - IP Tau
  - IP dadi
  - IP Nani
27. For testing the uniformity of the process the following chart is used:
- $\bar{X}$
  - R
  - P
  - C
28. Current quality concept a
- Increase in production
  - Continuous improvement
  - Prevention of defect
- 1 and 2
  - 1 and 2
  - 2 and 3
  - None
29. Which one of the following is NOT a major quality control method?
- Inspection
  - Testing
  - Loading
  - Sampling
30. Which one of the following refers to efforts to tailor thousands of items such as cars or hamburgers to specific customers' needs?
- Miniaturization
  - Mass customization
  - Reactive mode
  - Fire-fighting
31. Consider the following steps for an individual regarding preparation for disclosure of unethical behaviour:

1. Study and document the facts and formulate a plan for an appeal
2. Take up the matter with higher management
3. Discuss the matter with immediate supervisor
4. If the internal appeal does not resolve the conflict, then he should notify the company that he intends to continue with an external review of the problem

What is the correct sequence of order of the above steps?

- (a) 2, 3, 1 and 4  
(b) 1, 3, 2 and 4  
(c) 3, 2, 4 and 1  
(d) 1, 2, 3 and 4
32. A \_\_\_\_\_ is a group of persons who want to cooperate in serving the same ideal better than they could of if they did not cooperate.  
(a) Profession (b) Engineers  
(c) Both (a) and (b) (d) None
33. Some argue that laws are instituted at least in part to help establish a particular moral fabric in society. But the primary function of law is surely to help order society so that its institutions, organizations, and citizenry can work together harmoniously, regardless of any further moral aims of the la. Indeed, the highest courts have on occasion treated moral beliefs based on conscience or religious faith as grounds for making exceptions in the application of laws. The statements above, if true, most strongly support which one of the following?  
(A) The manner in which laws are applied sometimes takes into account the belief of the people governed by those laws.  
(B) The law has an one of its functions the ordering of society but is devoid of moral aims.  
(C) Actions based on religious belief or on moral conviction tend to receive the protection of the highest courts.  
(D) The way a society is ordered by law should not reflect any moral convictions about the way society ought to be ordered.
34. Arrange the following in hierarchical order as suggested by Carroll in the four-part model of corporate social responsibility?  
1. Economic  
2. Philanthropic  
3. Legal  
4. Ethical
- Select the correct answer using the code given below:

- (a) 2, 4, 3, 1 (b) 4, 3, 1, 2  
(c) 2, 1, 3, 4 (d) 1, 3, 4, 2



35. **Statement (I) :** Increasingly, employers have generally tended to expect engineers to possess both hard skills and soft skills.  
**Statement (II) :** Soft skills mean the knowledge of software.  
(a) Both statement (I) and statement (II) are individually true and statement (II) is the correct explanation of statement (I).  
(b) Both statement (I) and statement (II) are individually true and statement (II) is not the correct explanation of statement (I).  
(c) Statement (I) is true but statement (II) false.  
(d) Statement (I) is false but statement (II) true.
36. **A Given below are two statements : One is labelled as Assertion (A) and the other is labelled as Reason (R).**  
**Assertion (A):** Disaster management Act, 2005 envisages the provision for implementing all the disaster management activities of India.  
**Reason (R) :** India is the signatory of sendai framework of action 2015-30 to implement its agenda in the country  
**In the light of the above statements, choose the most appropriate answer from the option given below:**  
(a) Both (A) and are correct and (R) is the correct explanation of (A)  
(b) Both (A) and (R) are correct but (R) is NOT the correct explanation of (A)  
(c) (A) is correct but (R) is not correct  
(d) (A) is not correct but (R) is correct
37. **The North-Western Region of the Indian Sub-continent is susceptible to earthquake activity because of.**  
(a) Volcanic activity  
(b) Plate tectonic activity  
(c) Coral formation activity  
(d) All of the above
38. **Ozone layer is located at a height of**  
(a) 20-50 km (b) 150 km  
(c) 200 km (d) 500 km

39. Which of the following is natural earthquake source?  
 (a) Microseism  
 (b) Mining induced earthquake  
 (c) Reservoir induced earthquake  
 (d) Cultural noise
40. Biogas comprises mainly of  
 (a) 60% oxygen and 40% carbon dioxide  
 (b) 60% oxygen and 40% methane  
 (c) 60% methane and 40% oxygen  
 (d) 60% methane and rest carbon dioxide
41. A resistor measures  $4\Omega$  at  $40^\circ\text{C}$  and  $6\Omega$  at  $80^\circ\text{C}$ . At  $0^\circ\text{C}$  the resistor will measure  
 (a)  $1.5\Omega$  (b)  $2\Omega$   
 (c)  $3\Omega$  (d)  $4\Omega$
42. The advantage of hydro-electric power station over thermal power station is  
 (a) The initial cost of hydro-electric power station is low.  
 (b) The operating cost of hydro-electric power station is low.  
 (c) Hydro-electric power station can supply the power throughout the year.  
 (d) Hydro-electric power station can be constructed at the place where the energy is required.
43. Order of affinity towards Soot formation in the premiered flame is  
 (a) Alcohols<Parafins<Olefins<Acetylene  
 (b) Aromatics<parafins<Olefins<Acetylene  
 (c) Aromatics<Olefins<Parafins<Acetylene  
 (d) Acetylene<Olefins<Parafins<Aromatics
44. The cross-sectional area of one cylinder of an engine multiplied by stroke length is called \_\_\_\_\_.  
 (a) Engine capacity  
 (b) All cylinder volume  
 (c) Swept volume  
 (d) Clearance volume
45. The leakage resistance of a capacitor is generally measured by  
 (a) Megger  
 (b) Potentiometer  
 (c) Schering bridge  
 (d) Maxwell's bridge
46. Which of the following meters is an integrating type instrument?  
 (a) Ammeter  
 (b) Voltmeter  
 (c) Wattmeter  
 (d) Energy meter
47. To increase the range of a voltmeter  
 (a) a low resistance in series is connected with the voltmeter  
 (b) a low resistance in parallel is connected with the voltmeter  
 (c) a high resistance in series is connected with the voltmeter  
 (d) a high resistance in parallel is connected with the voltmeter
48. The reliability of an instrument refers to  
 (a) the measurement of changes due to temperature variation  
 (b) the degree to which repeatability continues to remain within specified limits  
 (c) the life of an instrument  
 (d) the extent to which the characteristics remain linear
49. An angular deflection type indicating PMMC meter is provided with spring control and  
 (a) Damping by air dashpot.  
 (b) Electromagnetic damping in the aluminium former only.  
 (c) Electromagnetic damping in the aluminium former and the moving coil as well.  
 (d) No damping.
50. The largest tidal range in the world is  
 (a) Bay of Fundy  
 (b) Ungava bay  
 (c) Bristol channel  
 (d) Turnagain arm of cook inlet
51. In which of the following region winds are stronger and constant:  
 (a) Deserts  
 (b) Offshore  
 (c) Low altitudes sites  
 (d) All of the above
52. Which one of the following statements is correct?  
 (a) The end product of fossil fuels is in the form of electrical energy.  
 (b) Watershed protection increases the rate of surface runoff of water  
 (c) If timber is overharvested, the ecological functions of the forest are improved.  
 (d) Reverse change their course during foods and lots of fertile soils are lost to the sea.
53. What is the most important thin to do when part is opened while overhauling the machines?  
 (a) Open all the part alternately  
 (b) Identification Marks should be put on the parts so that there is no difficulty while assembling the opened parts.  
 (c) The parts that done open should be hit with a hammer  
 (d) None of these

54. Which type of maintenance involves performing regular checks and services before equipment failure?  
 (a) Predictive maintenance  
 (b) Preventive maintenance  
 (c) Corrective maintenance  
 (d) Breakdown maintenance
55. Which of the following is an advantage of plant maintenance?  
 (a) It prolongs the life of the machines  
 (b) It decreases the safety of the plant  
 (c) It increases the accuracy of the instruments  
 (d) It decrease the using period to the machines
56. Consider the following statements about articulated configuration:  
 1. The articulated arm is often referred as an anthropomorphic manipulator.  
 2. The work volume of this configuration is spherical shaped.  
 Select the correct answer using the codes given below.  
 (a) 1 only  
 (b) 2 only  
 (c) both 1 and 2  
 (d) neither 1 nor 2
57. The single layer perceptron is not used in practice as they cannot solve \_\_\_\_problems  
 (a) Hard  
 (b) Heuristic based  
 (c) Non-linearly separable  
 (d) All of these
58. An original intelligible message fed into the algorithm as input is known as ....., while the coded message produced as output is called the .....  
 (a) decryption, encryption  
 (b) plain text, cipher text  
 (c) deciphering, enciphering  
 (d) cipher, plain text
59. What is a major difference between human problem solvers and computer programs ?  
 (a) Computer programs run faster  
 (b) Computer programs use momory  
 (c) Humans learn from experience  
 (d) Humans use AI
60. Which of the following issues were addressed while establishing an IT Policy?  
 1. Respect of the intellectual rights of others, including trade secrets, copyrights, patents, and trademarks.  
 2. Inappropriate use of IT resources, such as Web surfing, blogging, personal emailing, and other use of computers for purposes other than business.
3. The need to protect the security of the resources through adherence to good security practices, such as not sharing user IDs and passwords, using hard-to-guess passwords, and frequently changing passwords.
4. The use of the computer to intimidate, harass, or insult others through abusive language in emails and by other means.  
 Select the correct answer using the code given below:  
 (a) 1 and 3 only  
 (b) 2 and 3 only  
 (c) 2, 3 and 4 only  
 (d) 1, 2, 3 and 4
61. Which is the TCP/IP loopback address in networking?  
 (a) 256.0.0.1 (b) 127.0.0.1  
 (c) 255.1.1.0 (d) 128.0.0.1
62. The Protocol (http), the DNS name of the host, and the file name is identified through  
 (a) Uniform Resource Locator  
 (b) Web Browser  
 (c) Web Server  
 (d) IP address
63. Consider the following statements for significance of prominence in the Internet architecture:  
 1. Programmers are free to define new channel abstractions of applications that run on top of any of the existing protocols.  
 2. It defines a common method for exchanging packets among a wide collection of networks.  
 3. It allows someone to propose a new protocol to be included in the architecture.  
 Which of the above statements is/are correct?  
 (a) 1 only  
 (b) 2 and 3 only  
 (c) 1 and only  
 (d) 1, 2 and 3
64. Consider the following statements regarding Cyber security multi-donor trust fund:  
 1. The world bank has launched new 'Cyber security multi-donor trust fund', to better roll out cyber securtiy development agenda in a systematic manner.  
 2. The new fund has been developed as an associated trust fund under the broader digital development partnership (DDP) umbrella program.  
 3. World bank has partnered with four countries, namely Estonia, Japan, Germany, and the Netherlands, to launch the fund.